THE OPEN UNIVERSITY OF SRI LANKA
B.Sc DEGREE PROGRAMME: LEVEL 03
CLOSED BOOK TEST - 1: 2012/2013
CPU1141: INTRODUCTION TO COMPUTER PROGRAMMING
DURATION: **ONE AND HALF HOURS** (1 ½ HOURS)

Date: **1st March 2013** Time: **4.00 pm – 5.30 pm**

Answer ALL questions.

Q1.

a) What is the task of a **compiler?**

b) Explain how **Machine Languages** differ from **High Level Languages.**

c) Write the outputs of programs given below. **If there are any compilation errors, explain them briefly.**

(i)

```
#include <stdio.h>
int main( ){
        int goto=2;
        printf("%d",goto);
        return 0;
}
```

(ii)

```
#include <stdio.h>
int x=10;
int main( ){
   int x=20;
   printf("%d",x);
}
```

(iii)

```
#include <stdio.h>
int main( ){
   int main = 80;
   printf("%d",main);
}
```

(iv)

```
#include <stdio.h>
int main( ){
   int AB=10;
   printf("%d",ab);
}
```

(v)

```
#include <stdio.h>
int main( ){
   int y=10;

loop1:
   printf("%d",y);
   y = y++ + 2;
   if(y<=18)
        goto loop1;
}
```

(vi)

```
#include <stdio.h>
int main( ){
   int y = 2;

switch(y){

case 1:
        printf("You want to go left\n");
case 2:
        printf("You want to go right\n");
case 3:
        printf("You want to go forward\n");
case 4:
        printf("You want to go back\n");
```

```
default:
        printf("Your press invalid character \n");
}
}
```

Q2.

a) Briefly explain the following C operators.

i. Relational operators.

ii. Logical operators.

b) Write the outputs of programs given below.

i.
```
#include <stdio.h>
int main( )
{
int a=20;  int b=30;  int c= 40;
printf("%d",++a);          printf("%d\n",a+(b++));
printf("%d",a+b);          printf("%d\n",a+  ++c);
printf("%d",c--);          printf("%d\n",a+b+c);
getch();
}
```

ii.
```
#include <stdio.h>
int main( ){
    int physics =85;   int biology=75;   int chemistry=65;

if (physics >70  && chemistry > 70  &&  biology >70)
    printf("You have passed the exam");
else if (physics >70 && chemistry >70 || biology >70)
    printf("You have to sit your weak subject again");
else
    printf("You have failed the exam");
getch();
}
```

c) By using the ***conditional operator*** write a complete program to read the marks of a student and to prints his grade according to following criteria.

Marks	Grade
100-70	A
69-60	B
59-40	C
39-00	F

(Note: **DO NOT** use if-else statements or switch statements.)

Q3.

a)

i. Differentiate between ***gets*** and ***scanf*** functions.

ii. Differentiate between ***while*** and ***do-while*** loops.

iii. Differentiate between ***break*** and ***goto*** statements.

b) Write the outputs of programs given below.

(i)

```
#include <stdio.h>
int main(){
int i;  int j=2;
    for(i=0 ; i<=15 ; i++){
        printf("%d\n" ,  ++i);
        i+=j;
    }
getch();
}
```

(ii)

```
#include <stdio.h>
int main(){
int x =10 ; int y=1;

do{
        printf("%d, ",x++);
        x -= y;
        printf("%d\n" , --x);
        x=x+5;

} while (x<20);

getch();
}
```

c) Write a complete C program to find the volume of a cylinder. **Height and radius of the cylinder must be read from the user.**

(Note: **Volume of a cylinder = $\pi r^2 h$,** where r = radius, h = height).